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## Taking Qualitative Methods a Step Further to Team Science

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Pratt and Bonaccio's (2016) focal article properly reviews and identifies the need for qualitative research methods in our field. However, they overlooked one important benefit—team science—that is crucial to current organizations. Despite the fact that qualitative research in team science is lacking, we suggest that with qualitative research we can gain more insight into what teams need in order to be effective. According to Kozlowski and Bell (2003), team dynamics are historically looked at in a static way in teams research, solely focusing on individuals' perceptions of the team at a given time as opposed to multilevels over time. In an attempt to further expand on how qualitative research can examine constructs that purely quantitative methods may not, the purpose of this commentary is to highlight importance of qualitative research regarding its ability to capture team dynamics as they occur in the real world. The need for qualitative methods exists across various components (i.e., inputs, team emergent states, processes, outputs) when it comes to teams. We argue that how these components appear, happen, and, more importantly, evolve over time should be taken into consideration. The current commentary highlights how qualitative research can start to fill the gap of understanding team dynamics and how to improve team practices by taking time into consideration.

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### **The Need of Qualitative Research for Different Team Components**

Drawing from the input–mediator–output–input (IMOI) model (Ilgen, Holtenbeck, Johnson, & Jundt, 2005), we will focus on the role of qualitative research on inputs, mediators (i.e., team emergent states and processes), and outputs for team science. One criticism that qualitative research receives is that researchers are limited in the generalizability of their findings to different settings. However, in spite of the lack of generalizability, with qualitative data one can obtain a holistic understanding, as well as a deeper description of underdeveloped phenomena. This IMOI framework then provides a good foundation to understand each developmental component in a more nuanced manner.

#### ***Inputs***

In work teams, individuals bring their own knowledge, attitudes, and behaviors, which are inputs and processes in a developmental sequence that impacts the team's outputs (e.g., team performance). However, quantitative methods will often measure inputs only once and proceed with the assumptions that inputs and/or their predictability will remain as if inputs did not evolve over time (e.g., the team's ability changes as members exit or enter; Summers, Humphrey, & Ferris, 2012). Another construct, familiarity, is developed in the beginning of the team's existence, and this can result in fostering coordination and integration of members' efforts. When quantitative methods are applied, the inputs are static, whereas qualitative research can capture inputs in a more malleable manner. Hence, qualitative methods in addition to quantitative methods are strongly urged when it comes to teams.

#### ***Team Emergent States***

Team emergent states can be defined as constructs that describe cognitive, motivational, and affective states of teams; they change over time, contingent on team context, input processes, and outcomes (Marks, Mathieu, & Zaccaro, 2001). Trust is an example of a team emergent state because trust in teams develops over time, and moreover, it is dependent on the relationships that are developed between team members. Buvik and Rolfsen's (2015) qualitative case study conducted in the construction industry explored how prior ties between team members influence the development of trust. What makes this research study different is that it did not measure trust at one point in time; other factors were taken into consideration (e.g., prior ties), which was important to grasp because it explained how members' prior ties can still have an effect on new project work teams. Thus, qualitative research can provide a more realistic view of emergent states, especially for allowing and considering specific events and different levels (e.g., interaction at the dyadic level) simultaneously.

### ***Team Processes***

Over the course of time, team processes are important to understand because the interaction that happens among team members will give rise to emergent states. Utilizing qualitative research methods, Gibson and Zellmer-Bruhn (2002) uncovered five common metaphors (i.e., sports, community, family, associates, and military) that people use when describing their teams. Taking their research a step further, they also investigated the types of cultural contexts in which each teamwork metaphor is used. The use of team metaphors helps individuals comprehend the characteristics of a team: scope (what a team does), roles (who is on a team), and objectives (why a team exists). When taking the impact of temporal elements into consideration, it is expected that, through constant interaction and socialization, members will assimilate to the team's scope, roles, and objectives. Qualitative methods need to be implemented in such cases, in order to capture the effect that time has on how members' construct and concepts of a team can change over time.

### ***Performance***

Team research has yet to uncover the nuances of team performance. In order to gain a more in-depth insight about team outcomes, we must identify which point in time, which context these mechanisms arise in, and what performance indicators matter throughout the team's existence. For instance, Bartram (2005) identified eight competencies on which performance measurement should focus. Qualitative methods can attempt to capture the importance of these competencies as well as the manifestation of task-related behaviors that may not have been considered by quantitative methods.

### **Sample Areas To Advance Qualitative Research in Team Science**

When one uses quantitative methods, the conclusions drawn often fail to grasp how teams are both dynamic and complex in different contexts. Qualitative research advances our understanding of team science in different organizational settings. By incorporating the following principles, researchers can provide rich conclusions, which can contribute to newer theories regarding teams' complexity. More specifically, important research questions in team science can be addressed within extreme settings and/or by combining the methods via mixed-designs.

### ***Extreme Settings***

An organizational setting that should be taken into consideration is extreme environments, such as organizational teams in NASA or the armed forces. When observing such teams at a close proximity, it is possible to gain a more in-depth finding that aids in the advancement of teams in those exceptional circumstances. Furthermore, this research often yields small sample sizes,

which in turn limits its quantitative possibilities. As an example, researchers investigating cultural diversity in spaceflight crews within NASA had to draw conclusions based on interviews with astronauts (Burke & Feitosa, 2015). When reporting their findings, it became apparent that cultural training should be implemented because it helped members work alongside dissimilar others. Though NASA is a specific organization, similar organizations that employ multicultural teams can also benefit from these findings. Thus, we highly encourage organizations to provide cultural training for members to understand the behaviors of and make attributions to members of other cultural backgrounds.

### ***Time Constraint***

Nonetheless, qualitative research is a nonobtrusive way to understand teams. People may not have the time or resources to fill out multiple surveys that allow researchers to measure their perspectives about the construct of interest. Depending on the context that teams are being studied in, qualitative research allows researchers to draw conclusions without being a burden on people who are already busy. In organizations like the U.S. Army or NASA, busy team members may lack the resources and time to fill out surveys or questionnaires, a common practice found in quantitative methods. Engaging work circumstances would benefit from the use of qualitative methods as a form of research. The purpose of research is to understand and improve practices; however, if we are not given that opportunity because of time constraints, how are we expected to improve these practices?

### ***Mixed-Methods Approaches***

Qualitative research does not have to exist independently from quantitative research. When faced with the decision of design methodology, we should consider mixed-methods approaches. Mixed methods have the ability to integrate data at different stages of inquiry. Additionally, they can be especially helpful when trying to bring the contextual differences to the forefront (Bell, Fisher, Brown, & Mann, in press). Longitudinal analysis, for example, can incorporate mixed methods in order to inform researchers of what the temporal model of constructs are and how they change over time.

As an illustration, consider a study on trust and knowledge sharing, which are essential for teams. Members tend to share knowledge when they trust their team members. With this approach, we can expand even further by taking into consideration the content of information that was shared by team members, thus gaining insight about the type of knowledge that is being shared. Knowledge sharing may very well be taking place in teams; however, the question is whether or not the shared knowledge is relevant to the

completion of tasks. We can then better understand the development of trust as well as the richness of the knowledge being shared in teams.

### Conclusion

In summary, we expand on the need for qualitative methods in our field, highlighting the benefits, especially in team research. We see just how limited quantitative methods are in examining the teams' constructs over various points in time. We present the argument that qualitative methods can help us to better understand team science. Moreover, with qualitative research, one can understand phenomena that impact real people. We then highlight the added benefit of this approach to study teams in extreme environments and advocate toward mixed-design approaches.

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